



Knowledge of Primary School Healthcare Teachers Regarding the Management of Avulsed Teeth in Tabriz, Iran

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Abstract

Background: Traumatic dental injuries can be considered as an important social problem because they can affect daily lives of children, and their management is a major challenge in dentistry. Therefore, the aim of this study was to determine the primary school healthcare teachers' knowledge regarding the management of avulsed teeth in Tabriz, Iran.

Methods: In this descriptive cross-sectional study, 160 healthcare teachers were selected from Tabriz schools. A questionnaire was used to collect data on demographic characteristics and knowledge. Data were analyzed through descriptive statistics and independent t-test, using SPSS version 16.0. Statistical significance was set at $P < 0.05$.

Results: Among 160 healthcare teachers, 2.5% were male and 97.5% were female. The mean age of the participants was 39.2 ± 4.6 years. All the healthcare teachers had university education and 89.4% (143 subjects) of them had bachelor's degrees. Of all the subjects, 96 (60%), 58 (36.2%) and 6 (3.8%) teachers had poor, moderate and good knowledge, respectively.

Conclusions: The knowledge of school healthcare teachers in Tabriz about management of avulsed teeth is inadequate. Therefore, it is suggested that appropriate training programs be provided in this area, and it is recommended that the management of dental injuries be reviewed in educational programs and other health-related topics.

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Background

Trauma to deciduous and permanent teeth and their supporting structures is a common problem in children. Different studies have shown that the incidence of dental injuries (1%–3%) has increased in recent years, with a prevalence rate of 20% to 30% (1,2). In most cases of dental injuries, prompt and proper treatment can prevent future oral and esthetic problems. Lack of early detection and restoration of the dental function, occlusion and esthetic appearance of the patient might result in psychological disorders in the patient (1,3-5). The replantation surgery was introduced in the eleventh century. Replantation is a technique in which a tooth is placed back in its socket after being pushed out of it. It has been reported that rapid replantation is the best treatment for avulsion within 15 to 20 minutes after the trauma (6,7). Since school healthcare teachers are among the first people in contact with children who have had dental injuries, their information and awareness can play a significant role in the prevention and treatment of traumatic dental injuries. Studies conducted in this area often indicate

Highlights

- ▶ Knowledge of school healthcare teachers in Tabriz about dental injuries is inadequate.
- ▶ There was no relationship between knowledge level, gender, age and educational degree.
- ▶ Due to inadequate knowledge of the teachers, the Ministry of Health and authorities are advised to take proper steps to promote the knowledge of the society, especially the school healthcare teachers who are dealing with children with dental traumas.

inadequate awareness of these teachers (8-10). In a study on elementary school teachers, Mesgarzadeh et al observed that only one-third of the teachers were aware of the suitable material for preserving an avulsed tooth (tooth pushed out of its socket due to trauma) (10). Al-Obaida carried out a study on Saudi Arabian school teachers and reported that only 44.8% of teachers were aware of the need for prompt dental treatment (8). In a study by McIntyre et al, the majority of teachers and staff did not have proper knowledge about how to deal with dental injuries (9). In addition, studies in Kuwait (11),

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India (12), Mashhad in Iran (13), and Turkey (14) have shown poor knowledge of school staff and teachers about the management of dental trauma. It seems the first phase to organize healthcare educational programs, in order to improve the ability to manage dental traumatic injuries, is to evaluate the existing needs in the community, but a search in academic sources and databases did not bring up a study on the healthcare teachers' knowledge regarding dental trauma in Tabriz, Iran, in recent years. Therefore, the aim of the present study was to evaluate the primary school healthcare teachers' knowledge regarding the management of avulsed teeth in Tabriz, Iran.

Methods

Study Design

This cross-sectional study was carried out from April

2016 to October 2017 in elementary Schools, Tabriz, Iran. The statistical population consisted of all the primary school healthcare teachers in Tabriz, with at least one year of work experience. Census method was used to include subjects in the study. Therefore, all the primary school healthcare teachers in Tabriz (160 subjects) in 2016–2017 were evaluated.

Teachers who were not willing to participate in the study and questionnaires that were incompletely filled out were excluded from the study.

Data Collection

Data were collected using a researcher-made questionnaire (Table 1), which consisted of demographic data (age, gender, work experience, educational degree) and 11 multiple-choice questions on teachers' knowledge about

Table 1. The Study Questionnaire

Q1. Which teeth are at increased risk of injury after a facial trauma?	<ul style="list-style-type: none"> • Upper anterior teeth • Lower anterior teeth • Posterior teeth
Q2. Which age group is more likely to have dental trauma?	<ul style="list-style-type: none"> • Under 7 years • 8 to 10 years • After 18 years
Q3. In general, which tooth types are at increased risk of injury?	<ul style="list-style-type: none"> • Permanent teeth • Deciduous teeth • Both are the same
Q4. Which gender is more likely to suffer dental trauma?	<ul style="list-style-type: none"> • Boys • Girls • Both are the same
Q5. During school hours, a 10-year-old student fell from stairs and hit his/her mouth. The upper teeth are not visible in the child's mouth. What should you do?	<ul style="list-style-type: none"> • Calm him and call the parents • Look for the tooth. Ask him/her to hold the tooth in the mouth and take him/her immediately to the dentist • Take him/her to the dentist after school • No action
Q6. If a tooth is out of the student's mouth due to oral trauma, can it be put back in its place?	<ul style="list-style-type: none"> • Yes • No • It depends on whether the teeth are permanent or deciduous
Q7. When is the best time to replant the tooth if the tooth is avulsed?	<ul style="list-style-type: none"> • Under 20 minutes • 40 to 60 minutes • 1 to 2 hours • Time is not important because no action can be taken
Q8. What would you do if the tooth fell on the dirty ground?	<ul style="list-style-type: none"> • Rinse the teeth lightly with a toothbrush • Rinse the tooth under tap water • Rinse the tooth under antiseptic solution • Rinse the tooth under salt water • Discard the tooth
Q9. What would you do if the avulsed tooth is broken?	<ul style="list-style-type: none"> • Look for the tooth and the broken section and take him/her immediately to the dentist • Look for the tooth and take the child to the dentist. Discard the broken section • Discard the tooth because no action can be taken
Q10. How would you transport the avulsed tooth to the dentist?	<ul style="list-style-type: none"> • Inside a suitable liquid • Inside a paper • Inside the child's mouth • Discard the tooth because no action can be taken
Q11. Which liquid is suitable to transport the tooth to the dentist?	<ul style="list-style-type: none"> • Tap water • Milk • Salt water • Antiseptic solution • Discard the tooth because no action can be taken

the management of avulsed teeth. Each correct answer was given a positive score and wrong ones were not given any scores. Each teacher's total score was the sum of his/her correct responses, with a score range of 0 to 11. The teachers' scores were characterized as follows:

A score of 9–11: good knowledge

A score of 6–8: moderate knowledge

A score of 0–5: poor knowledge

Validity and Reliability of the Questionnaire

In order to assess the validity of the questionnaire, it was reviewed by 11 professors in the Faculty of Dentistry and the necessary changes were made. In order to determine the reliability of the questions, it was distributed among 25 teachers in a pilot study and then its reliability was calculated using Cronbach's alpha coefficient. After the questionnaire was accepted, it was distributed among the subjects. Cronbach's alpha was calculated at 0.82.

Statistical Analysis

Data were reported using descriptive statistics (frequencies, means and standard deviations). Independent *t* test was used for the analysis of data with SPSS 16.0. Statistical significance was set at $P < 0.05$.

Results

All the 160 questionnaires distributed were fully completed and returned. The mean age of the participants was 39.2 ± 4.6 years with an age range of 27 to 48 years; 2.5% of the subjects were male (4 persons) and 97.5% were female (156 persons). All the healthcare teachers had university education, 10.6% (17 persons) had associate degrees and 89.4% (143 persons) had bachelor's degrees (Table 1).

The lowest and highest knowledge scores were 1 and 10, respectively. The majority of the participants in the study provided correct responses to 5 out of 11 questions.

In our study, 96 (60%), 58 (36.2%) and 6 (3.8%) teachers exhibited poor, moderate and good knowledge, respectively.

Among the participants, 4 were male and 156 were female achieved mean scores of 6.5 ± 1.0 and 6.0 ± 1.6 , respectively. There was no significant relationship between the gender of the teachers and their knowledge level ($P = 0.53$, $CI = -2.09-1.09$).

Of all the participants in the study, 108 and 52 subjects in the age range of ≤ 40 and > 40 achieved mean scores of 5.93 ± 1.6 and 6.4 ± 1.4 , respectively. There was no significant relationship between the age of the teachers and their knowledge level ($P = 0.07$, $CI = -0.0428-0.983$).

A total of 90 subjects with < 15 and 70 subjects with 15–30 years of work experience achieved mean scores of 5.88 ± 1.6 and 6.3 ± 1.5 , respectively. However, there was no significant relationship between teaching experience and knowledge level ($P = 0.0925$, $CI = -0.07$ to 0.91).

Table 2. Demographic Data of the Participants in the Study

Age (mean \pm SD)	39.2 \pm 4.6 (27–48)	
Gender, No. (%)	Male	4 (2.5%)
	Female	156 (97.5%)
Academic degree, No. (%)	Associate degree	17 (10.6%)
	Bachelor's degree	143 (89.4%)

Table 3. Mean Knowledge Score of Participants Based on Gender, Age, Work Experience and Academic Degree

		Knowledge Score	P
Gender	Male	6.5 (SD=1.0)	0.53
	Female	6.0 (SD=1.6)	
Age	≤ 40	5.93 (SD=1.6)	0.07
	> 40	6.4 (SD=1.4)	
Work experience	< 15	5.88 (SD=1.6)	0.0925
	15–30	6.3 (SD=1.5)	
Academic degree	Associate degree	5.9 (SD=1.3)	0.8
	Bachelor's degree	6.0 (SD=1.6)	

Seventeen and 143 participants with associate and bachelor's degrees achieved mean scores of 5.9 ± 1.3 and 6.0 ± 1.6 , respectively. There was no significant relationship between the educational level of teachers and their knowledge level ($P = 0.8$, $CI = -0.7-0.9$) (Table 2).

Discussion

After dental caries, attention to dental trauma has increased as the second most common dental injury in childhood and adolescence (1,3). A recent systematic review of dental traumas showed that one-third of all preschool children sustain traumas to their deciduous teeth, and a quarter of all school-age children and about one-third of adults suffer from trauma to their permanent teeth, but there are variations between different countries and within countries (15). It is important to inform the community members about what to do when a dental trauma occurs in order to improve tooth prognosis. Individuals possible to be involved in dental trauma at the site of the accident are school-age children and persons in their surroundings, i.e. teachers and parents (11).

In this study, of 160 primary school healthcare teachers, 96 (60%) subjects achieved a score of < 5 out of 11 regarding the management of avulsed teeth in Tabriz, Iran, which is considered as a poor level of awareness. Consistent with the results of this study, previous studies have reported that the level of knowledge of school teachers about dental traumas is generally inadequate (8-14).

Rouhani et al (13) indicated lack of knowledge about dental trauma management among 160 school staff in Mashhad.

Al-Obaida reported inadequate knowledge and awareness of primary school teachers in Riyadh about management of dental traumas (8).

Arikan and Sonmez (14) reported that knowledge

levels of 450 teachers in Turkey about traumatic dental injuries and their emergency management were low, and distribution of leaflets increased the knowledge level of the teachers. There was no relationship between teaching experience and knowledge level in their study, which is consistent with the results of the present study.

Almost half of the teachers (43.7%) in the present study were experienced teachers with more than 15 years of teaching experience, but they could obtain only an average score of 6.3 ± 1.5 out of 11, which did not differ from the knowledge level of inexperienced teachers (<15 years of teaching experience) with an average score of 5.88 ± 1.6 . However, Al-Obaida indicated positive results from experienced teachers who had longer duration of teaching and dental trauma experience (8).

In the present study, there was no relationship between knowledge level and gender, age and educational degree. Uppal et al (12) reported that factors like age, longer career span and higher educational level did not result in more knowledge about management of traumatic dental injuries, which was similar to the results of the present study. However, in a study by Arikian and Sonmez (14), male teachers had lower knowledge than female teachers. These contradictory results might be attributed to differences in the research population, study questionnaires, age, gender and other demographic parameters. Nevertheless, all these studies have something in common: teachers, the first ones who confront a child with dental trauma, are not well-informed.

Limitations and Recommendations

This study was cross-sectional in nature and the participants, primary health teachers, were selected from Tabriz, which limits the external validity and generalizability of the results.

It is suggested that specific training with a dental component and previous experience with dental trauma have slight effects on the level of knowledge (16), which was not considered in the present study.

Further studies are recommended with larger sample sizes to compare the knowledge of teachers in different schools of the country. In addition, the teachers' attitudes and performance are important and should be considered in future studies. Due to inadequate knowledge of the teachers, the Ministry of Health and other governmental authorities are recommended to take proper actions to promote the knowledge of the society, especially the school healthcare teachers who might confront children with dental traumas. Methods that can be used to this end are posters, leaflets and lectures.

Conclusions

Knowledge of primary school healthcare teachers about the management of avulsed teeth in Tabriz is inadequate. Therefore, it is suggested that appropriate training courses

should be provided in this area.

Ethical Statement

This study was conducted in agreement with the Helsinki Declaration of 1975, which was revised in 2002 (17). The protocol of the study was approved by the Ethics Committee of Tabriz University of Medical Sciences. The aim of the study was explained to all the subjects before the study and participants' information was kept confidential. Detailed informed consent form was obtained from all the participants.

Conflict of Interest Disclosures

The authors declare that they have no conflict of interests.

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